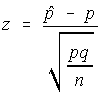


**UNIVERSITY OF MAINE AT FARMINGTON**

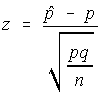
**COLLEGE OF EDUCATION, HEALTH AND REHABILITATION**

**LESSON PLAN FORMAT**

**Teacher’s Name:**Sarah Fredrick **Lesson #:** 3 **Facet:** Interpretation   
**Grade Level:** High School **Numbers of Days:** 3-4  
**Topic:** Decision Making   
  
**PART I:**   
**Objectives**  
**Student will understand that**probability is useful in problem solving and decision making.  
**Student will know**Definitions - [probability](http://www.dictionary.com/browse/probability), [expected value](http://www.investopedia.com/terms/e/expected-value.asp), [probability distribution](http://www.investopedia.com/terms/p/probabilitydistribution.asp), [random variable](https://en.wikipedia.org/wiki/Random_variable), [mean](https://en.wikipedia.org/wiki/Mean), [median](https://en.wikipedia.org/wiki/Median), [standard deviation](https://en.wikipedia.org/wiki/Standard_deviation), [standard error](http://www.investopedia.com/terms/s/standard-error.asp), Formulas - [expected value formula](http://statistics.about.com/od/Formulas/a/What-Is-The-Formula-For-Expected-Value.htm), [probability distribution formula](http://formulas.tutorvista.com/math/probability-distribution-formula.html), [z-value formula for means](http://www.statisticshowto.com/how-to-calculate-a-z-score/#zscoreformulas), [z-value formula for probability](https://people.richland.edu/james/lecture/m170/ch08-pro.html), Critical details - problem solving, [decision making](http://www.tutorialspoint.com/management_concepts/decision_making_process.htm)  
**Student will be able to**evaluate the impact of their decision  
**Product:**Comic   
  
**Maine Learning Results (MLR) or Common Core State Standards (CCSS) or Next Generation Science Standards (NGSS) Alignment**  
**Common Core State Standards**  
**Content Area**: Statistics and Probability  
**Grade Level**: High School  
**Domain**: Using Probability to Make Decisions  
**Cluster**: Calculate expected values and use them to solve problems  
**Standards**: 4. Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.  
**Rationale:**This standard will be met in this lesson because the teacher will be teaching students how to develop a probability distribution and find the expected value and make decisions based on the expected value.  
  
**Assessments**  
**Formative (Assessment for Learning)**   
**Section I – checking for understanding strategy during instruction**  
Students will be given a few problems at the end of class as an exit ticket. During class the teacher will check for understanding using 3-2-1 to help students understand how to use probability to evaluate the impact of decisions  
**Section II – timely feedback for products (self, peer, teacher)**  
Peers will look at the comics created by their classmates and will "grade" their comics based on the criteria in the rubric. As the teacher I will look at the comics and see if they understand how to evaluate the impact of decision based on their comic. I will give written feedback on the rubric.  
**Summative (Assessment of Learning):**   
Comic: Students will create a comic to show their understanding of how probability can help them figure out the impact of a decision. In the comic students will create their own character. The character will be faced with a difficult decision. In the comic the students will show the character using probability to figure out the best option. Students will then show the impact of the characters decision. 30 points  
  
**Integration**  
**Technology (SAMR):**  
ToonDoo - this is at the augmentation level because of all of the options that students have when creating their comics.  
**Content Areas:**  
Art. Students will be creating their own comics and can use their own drawings if they wish.  
  
**Groupings**  
**Section I - Graphic Organizer & Cooperative Learning used during instruction**  
Time line - students will create a timeline of the problem that is posed, the decision, and the impact of that decision. One Stray - students will be able to see what other students decisions where based on probability. Students will create a comic where a character has to choose to do something. Students will show the impact of the characters decision.  
**Section II – Groups and Roles for Product**  
Students will work on their own when they create their comics.  
  
**Differentiated Instruction**  
**MI Strategies**  
**Verbal:** Students will talk with other students in a group during the one stray cooperative learning activity.  
**Logic:** Students will have to make a logical sequence for their comic.  
**Visual:** Students will be creating comics that will involve characters.  
**Kinesthetic:** Students will have multiple chances to move around the room and work with different people during the One Stray activity.  
**Intrapersonal:** Students will be able to evaluate the impact of their own decisions at the end of the lesson.  
**Interpersonal:** Students will be giving peer feedback on the comics.  
**Modifications/Accommodations**  
***From IEP’s ( Individual Education Plan), 504’s, ELLIDEP (English Language Learning Instructional Delivery Education Plan)****I will review student’s IEP, 504 or ELLIDEP and make appropriate modifications and accommodations.*  
  
**Plan for accommodating absent students:**   
If you are absent, it is the student's responsibility to make up the assignments and/or tests when they return. All homework assignments are posted on my class website. This includes classes missed for field trips and sports events. It is the student's responsibility to come in at lunch or after school to catch up on missed work from their absences. You should get the notes that you missed from another student before meeting with me. If students are absent on the day of a test, they will be expected to make up the test on the next day that they are in school. There are exceptions for extended absences but the student must come see me the day they get back to school. Students will be expected to get notes from classmates and come in to see the teacher afterwards if they miss any day during this lesson. If students miss the day that the project is introduced they will be expected to come and see the teacher to talk about an extension. If students miss the entire time that the project is being worked on then they will need to see the teacher for an extension.   
  
  
**Extensions**  
  
**Technology (SAMR): Gifted Students:**   
ToonDoo can be brought up to the modification level by allowing students to publish their comic on the ToonDoo website. They can also discuss their comic with other users and can have people leave feedback on their comics using the comment feature.  
  
**Materials, Resources and Technology**  
*graphic organizers*  
*white board*  
*markers*  
*colored pencils*  
*rubrics*  
*projector/smart board*  
*exit ticket - quiz*  
  
**Source for Lesson Plan and Research**  
<http://edu221resources.wikispaces.com/file/view/cooperative_learning_strategies.pdf/426402320/cooperative_learning_strategies.pdf>. The teacher will use the One Stray activity.  
<http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf>. The teacher will use the 3-2-1 and exit ticket strategies.  
<http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf> Time line graphic organizers  
<http://dictionary.reference.com/browse/probability> probability definition.  
<http://www.investopedia.com/terms/e/expected-value.asp> expected value definition  
<http://www.investopedia.com/terms/p/probabilitydistribution.asp> probability distribution definition  
<https://en.wikipedia.org/wiki/Random_variable> random variable definition  
<https://en.wikipedia.org/wiki/Mean> definition of mean  
<https://en.wikipedia.org/wiki/Median> definition of median  
<https://en.wikipedia.org/wiki/Standard_deviation> definition of standard deviation  
<http://www.investopedia.com/terms/s/standard-error.asp> definition of standard error  
<http://statistics.about.com/od/Formulas/a/What-Is-The-Formula-For-Expected-Value.htm> expected value formula  
<http://formulas.tutorvista.com/math/probability-distribution-formula.html> probability distribution formula  
<http://www.statisticshowto.com/how-to-calculate-a-z-score/#zscoreformulas> z - value formula for means  
<https://people.richland.edu/james/lecture/m170/ch08-pro.html> z- value formula for proportions  
<http://www.toondoo.com/> Students will be using this free website to create their own comics.  
<https://www.youtube.com/watch?v=PgPTMP82-Hg> Tutorial for ToonDoo  
<https://www.youtube.com/watch?v=B81P7T3YRfU> Tutorial for ToonDoo  
<http://www.tutorialspoint.com/management_concepts/decision_making_process.htm> the teacher will use this information in the decision making mini lesson.  
<http://www.the-happy-manager.com/tips/steps-in-decision-making/> the teacher will use this information in the decision making mini lesson  
<https://www.statcrunch.com/5.0/viewreport.php?reportid=30363&groupid=1422> the teacher will use this data in the hook  
<http://mathbits.com/MathBits/TISection/Statistics2/linear.htm> the teacher will use this information in the hook  
<https://www.khanacademy.org/math/probability/probability-and-combinatorics-topic/decisions-with-probability/e/using-probability-to-make-fair-decisions> the teacher will use this as a resource when creating problems to do in class  
  
**PART II:**  
  
**Teaching and Learning Sequence**   
  
**Classroom Arrangement**  
The classroom will have three rows made up of two desks pushed together. The desks will be facing the board. There will be a table with lined paper and other supplies that the students may need for the lesson.

**Agenda**  
Day 1: [Hook](https://www.statcrunch.com/5.0/viewreport.php?reportid=30363&groupid=1422) into lesson 10 minutes  
Mini Lesson on [decision making](http://www.tutorialspoint.com/management_concepts/decision_making_process.htm) process 20 minutes  
Problems involving decision making 40 minutes  
Introduction into product 10 minutes  
Assignment: Start thinking about comic  
Day 2: More problems with decisions, 3-2-1[checking for understanding](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf) 30 minutes  
[One Stray](http://edu221resources.wikispaces.com/file/view/cooperative_learning_strategies.pdf/426402320/cooperative_learning_strategies.pdf) 20 minutes  
Time to fill out [graphic organizer](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf) 15 minutes  
[Exit ticket](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf)15 minutes  
Assignment: Finish [graphic organizer](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf), use as story board for comic  
Day 3: [Tutorials](https://www.youtube.com/watch?v=PgPTMP82-Hg) and signing up for [toondoo](http://www.toondoo.com/) 20 minutes  
Time to share story board ([graphic organizer](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf)) with teacher and peers 20 minutes  
Time to work on comic 40 minutes  
Assignment: finish comics and be ready to share with the class next meeting  
Day 4: Presenting comics 50 minutes  
feedback time 15 minutes  
thoughts on the project 15 minutes  
**Teaching and Learning Sequence**   
  
Students will understand that probability is useful in problem solving and decision making. The standard that will be addressed in this lesson is 4.*Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.* The teacher will hook the students into the lesson by showing students a graph on how many [hours studied and grades on tests](https://www.statcrunch.com/5.0/viewreport.php?reportid=30363&groupid=1422). The students will have to think about how many hours they feel they need to study for a test if they want to get a certain grade. Students then have to think about how many hours they will study if they go to a basketball game. Students will make the decision on whether or not they will go to the game and how that will impact their score on the test. This activity will introduce students to the decision making process and will start the lesson on decision making in probability. This will hook students into the lesson because they will see the impact that extracurricular activities have on their grades.  
**Where, Why , What, Hook Tailors:** *Logical, Intrapersonal, Interpersonal*  
  
Students will know [probability](http://dictionary.reference.com/browse/probability) - the possibility that an event will occur, [expected value](http://www.investopedia.com/terms/e/expected-value.asp) - the predicted value for a given event, [probability distribution](http://www.investopedia.com/terms/p/probabilitydistribution.asp) - describes all the possible values and their likelihood of occurring, [random variable](https://en.wikipedia.org/wiki/Random_variable) - a variable whose value is subject to variations due to chance, [mean](https://en.wikipedia.org/wiki/Mean) - used as a synonym for expected value, [median](https://en.wikipedia.org/wiki/Median) - the number that separates the higher half of the data sample from the lower half, [standard deviation](https://en.wikipedia.org/wiki/Standard_deviation) - the number that is used to describe how much the data varies from the mean, [standard error](http://www.investopedia.com/terms/s/standard-error.asp) - the standard deviation of the sampling distribution,[expected value formula](http://statistics.about.com/od/Formulas/a/What-Is-The-Formula-For-Expected-Value.htm) - E(*X*) = *x*1*p*1 + *x*2*p*2 + *x*3*p*3 + . . . + *x*n*p*n., [z-value formula for means](http://www.statisticshowto.com/how-to-calculate-a-z-score/#zscoreformulas) -**z = x – μ / σ**, [z-value formula for probability](https://people.richland.edu/james/lecture/m170/ch08-pro.html) -,[probability distribution formula](http://formulas.tutorvista.com/math/probability-distribution-formula.html) – Normal Probability Distribution

, problem solving, [decision making](http://www.tutorialspoint.com/management_concepts/decision_making_process.htm). During this lesson the teacher will be handing out [timeline graphic organizers](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf). Students will use this graphic organizer to write a step by step process for decision making. The graphic organizer will be completed during class time. Students will also use this [graphic organizer](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf) as a story board for the comics they will be creating. The [checking for understanding activities](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf) in this lesson are 3 - 2 -1 and exit ticket. The teacher will use 3 -2 -1 to check for understanding during class. The teacher will be going over problems that involve decision making and will use the [3 - 2- 1 checking for understanding](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf) while doing this. At the end of each problem the students will use their fingers to indicate how well they understand what they just did. A student will hold up three fingers if they completely understand how to do the problem. Students will hold up two fingers if they have some questions on the problem but overall understand the concepts and how to solve the problem. Students will hold up one finger if they have no idea how to do the problem or if they have a lot of clarifying questions. The teacher will give students a short quiz at the end of class as an [exit ticket](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf) to check and see if students know how to do the problems. This will happen on the same day as the 3 - 2 - 1 checking for understanding. This will allow the teacher to see if the students who were confused at the beginning of class now know how to solve the problems and know the concepts of the lesson. The [cooperative learning activity](http://edu221resources.wikispaces.com/file/view/cooperative_learning_strategies.pdf/426402320/cooperative_learning_strategies.pdf) in this lesson is One Stray. The teacher will break the students into 5 teams by giving each student a number between 1 and 5. The students will then get in a group based on their number, all the 1's together, all the 2's together, etc. The teacher will then pose a problem to the students and they will have to solve the problem and then go through the decision making process and figure out what they best decision is in the context of the problem. The students will have to come to a conclusion as a group. The groups will then be separated by numbers and new groups will be formed. The students will then have to discuss with their new group what decision they made and why.  
**Equip, Explore, Rethink, Tailors:** *Interpersonal, Logical, Kinesthetic*  
  
Student will be able toevaluate the impact of their decision. In this lesson students will be creating a comic using [ToonDoo.com](http://toondoo.com/) Students will be working on their own to create this product. The teacher will use tutorials during class time to introduce the project. Students will be shown where they can find the links on the teacher’s website this way they can use them outside of class. Students will have the opportunity for peer feedback during this project during the time set aside in class. Students will be showing their story boards to their peers and asking for feedback while they individually meet with the teacher for feedback on their story boards. Students will be giving peer feedback using the rubric that the teacher will be using to evaluate their products. Students will be giving their peers feedback while they are presenting their comics to the class. Students will also be revising their work after they get feedback in class on their story boards from their peers and the teacher. Students will have the opportunity to revise their work after receiving written feedback on the rubric from the teacher.  
**Experience, Revise, Refine, Tailors:** *Intrapersonal, Logical, Visual, Verbal, Interpersonal*  
  
The teacher will give feedback on this product. The teacher will be using a rubric to give feedback on the ToonDoo project to let the students know how they scored on their product. The teacher will provide written feedback on the rubric so that students know why they got the category that was circled as well as written feedback that explains their grade. The teacher will fill out the rubric and given written feedback while the students are presenting the comic and will give the feedback to the students at the end of class. Students will need to know the importance of decision making for the next lesson where they will be finding where probability is in their lives outside of the classroom and in the real world.   
**Evaluate, Tailors:** *Visual, Logical, Intrapersonal*  
  
**Teacher Content Notes**  
Day 1: The teacher will hook students into the lesson by showing students a [graph of hours studied and test scores](https://www.statcrunch.com/5.0/viewreport.php?reportid=30363&groupid=1422). Students will then go through planning their study time and how well they will do on the test. Using the information they will decide if they can "afford" to go to a basketball game the night before the test. The teacher will introduce the [decision making process](http://www.tutorialspoint.com/management_concepts/decision_making_process.htm) to the class. This will help them make decisions as part of solving probability problems and will help them when they fill out their [graphic organizer](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf) and make their comics. The class will then go through solving problems with probability like they did in the last lesson however this time the problems will have a decision that needs to be made at the end. The teacher will then introduce the product to the class so they can see why they are learning how to make decisions. For homework students will be assigned to start thinking about the comic they want to create and to write down any ideas they have.  
Day 2: The teacher will start class by going over more problems that have decisions in them. While doing these problems the teacher will use the 3 -2 -1 [checking for understanding](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf) strategy to make sure that students understand what they are doing and how important decision making can be especially in statistics. The teacher will then lead students in the [one stray activity](http://edu221resources.wikispaces.com/file/view/cooperative_learning_strategies.pdf/426402320/cooperative_learning_strategies.pdf). The teacher will break students into groups by giving them a number 1 - 5. At the end of the [cooperative learning activity](http://edu221resources.wikispaces.com/file/view/cooperative_learning_strategies.pdf/426402320/cooperative_learning_strategies.pdf) the teacher will give students time to fill out their [graphic organizer](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf). During the last 15 minutes of class the teacher will give the students a 2 -4 problem quiz as an [exit ticket](http://edu221spring11class.wikispaces.com/file/view/strategies.pdf/200849872/strategies.pdf)and the teacher will use this information to make sure students understand the concepts. The homework will be for the students to finish their [graphic organizers](http://www.eduplace.com/graphicorganizer/pdf/timeline.pdf) and use them as a story board for their comics.  
Day 3: The teacher will start the class by reminding students about the product they will be creating. The teacher will then show the students the tutorials for ToonDoo which is the website that the class will be using to create their comics. The class will then sign up for [ToonDoo](http://www.toondoo.com/) together to make sure all technical difficulties are worked out in class. Students will then get time to get feedback on their story board from their peers. At the same time the teacher will meet with each student individually to go over their storyboard to make sure they have all the steps of the [decision making process](http://www.tutorialspoint.com/management_concepts/decision_making_process.htm). The rest of class will be used for students to work on their comics. The homework assignment will be for students to finish their comics and to be ready to share them with the class next time that class meets.  
Day 4: The majority of class will be dedicated to students informally presenting their comics. There will be time at the end of the presentations for students to give their peers feedback. The last few minutes of class will be for the students to give the teacher feedback about the project and about the website that they used for the project.  
  
**Handouts**  
*graphic organizers*  
*exit ticket - quiz*  
*rubrics*  
  
**Maine Common Core Teaching Standards for Initial Teacher Certification and Rationale**  
  
***Standard 1 – Learner Development. The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.***  
  
***Learning Styles***  
***Clipboard:*** The teacher will hand out a graphic organizer where students will plan out their story for their comics. This will help students be organized when it comes time to makes their products.  
***Microscope:*** Students will be learning about the way their classmates would make decisions and what choices they would make when they plan the cooperative learning activity, One Stray.   
***Puppy:*** The teacher will make sure that students feel safe in the classroom environment. The teacher will also make sure that students feel comfortable enough to be able to share the problems they created with their classmates without getting negative comments.

***Beach Ball:*** Students will have personal freedom when creating their own comics. The comics can be about any character, the character can even be made up from the student's imagination, it does not have to be a real-life character (i.e.: Mickey mouse, themselves). The character can be working through any decision as long as the decision can be made using probability.   
  
***Rationale:*** It is important for the teacher to address all of these learning styles because in the classroom teachers will have students with each learning style and all the students need to be able to learn in a way that best suits them.   
  
***Standard 6 -* *Assessment. The teacher understands and uses multiple methods of assessment to engage learners in their on growth, to monitor learner progress, and to guide the teacher's and learner's decision making.***  
  
***Formative:***   
Exit ticket - Students will be given a quiz with 2-4 problems at the end of class.  
3-2-1: During class the teacher will check for understanding using 3-2-1 to help students understand how to use probability to evaluate the impact of decisions.  
***Summative:***   
Comic: Students will create a comic to show their understanding of how probability can help them figure out the impact of a decision. In the comic students will create their own character. The character will be faced with a difficult decision. In the comic the students will show the character using probability to figure out the best option. Students will then show the impact of the characters decision. 30 points  
***Rationale:*** I am using the 3-2-1 formative assessment to make sure during class that students understand how to use probability to evaluate the impact of their decisions. I am using the exit ticket to make sure that students understand how to use probability to make decisions that will have the least detrimental effect on people involved in the decision. The summative assessment will show the teacher that the students know how to make a decision using probability and that they know the impact of their decisions by portraying this through a character they created.   
  
***Standard 7* - *Planning Instruction. The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.***  
  
***Content Knowledge:***  
Students will know [probability](http://dictionary.reference.com/browse/probability) - the possibility that an event will occur, [expected value](http://www.investopedia.com/terms/e/expected-value.asp) - the predicted value for a given event, [probability distribution](http://www.investopedia.com/terms/p/probabilitydistribution.asp) - describes all the possible values and their likelihood of occurring, [random variable](https://en.wikipedia.org/wiki/Random_variable) - a variable whose value is subject to variations due to chance, [mean](https://en.wikipedia.org/wiki/Mean) - used as a synonym for expected value, [median](https://en.wikipedia.org/wiki/Median) - the number that separates the higher half of the data sample from the lower half, [standard deviation](https://en.wikipedia.org/wiki/Standard_deviation) - the number that is used to describe how much the data varies from the mean, [standard error](http://www.investopedia.com/terms/s/standard-error.asp) - the standard deviation of the sampling distribution,[expected value formula](http://statistics.about.com/od/Formulas/a/What-Is-The-Formula-For-Expected-Value.htm) - E(*X*) = *x*1*p*1 + *x*2*p*2 + *x*3*p*3 + . . . + *x*n*p*n., [z-value formula for means](http://www.statisticshowto.com/how-to-calculate-a-z-score/#zscoreformulas) - **z = x – μ / σ**, [z-value formula for probability](https://people.richland.edu/james/lecture/m170/ch08-pro.html) -,[probability distribution formula](http://formulas.tutorvista.com/math/probability-distribution-formula.html) -Normal Probability Distribution, problem solving, [decision making](http://www.tutorialspoint.com/management_concepts/decision_making_process.htm)  
***MLR or CCSS or NGSS***  
**Common Core State Standards**  
**Content Area**: Statistics and Probability  
**Grade Level**: High School  
**Domain**: Using Probability to Make Decisions  
**Cluster**: Calculate expected values and use them to solve problems  
**Standards**: 4. Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.  
***Facet:*** Interpretation   
  
***Rationale:*** I choose this rationale because the teacher will be teaching students how to develop a probability distribution and find the expected value and make decisions based on the expected value.  
  
***Standard 8 -* *Instructional Strategies. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.***  
  
***MI Strategies:***   
**Verbal:** Students will talk with other students in a group during the one stray cooperative learning activity.  
**Logic:** Students will have to make a logical sequence for their comic.  
**Visual:** Students will be creating comics that will involve characters.  
**Kinesthetic:** Students will have multiple chances to move around the room and work with different people during the One Stray activity.  
**Intrapersonal:** Students will be able to evaluate the impact of their own decisions at the end of the lesson.  
**Interpersonal:** Students will be giving peer feedback on the comics.  
***SAMR:*** ToonDoo - this is at the augmentation level because of all of the options that students have when creating their comics.  
***Rationale:*** The MI's that are being used in this lesson are differentiating instruction because they are helping students with different learning styles be successful in this class. By satisfying multiple intelligences, the teacher is giving all students an equal opportunity to learn no matter what intelligence they learn best in. The ToonDoo project promotes higher order thinking because students have to create their own character and make them go through a decision making process using what they learned during the lesson.

***NETS STANDARDS FOR TEACHERS***  
**1. Facilitates and Inspire Student Learning and Creativity. Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.**  
a. Promote, support, and model creative and innovative thinking and inventiveness  
  
b. Engage students in exploring real-world issues and solving authentic problems using digital tools and resources  
  
c. Promote student reflection using collaborative tools to reveal and clarify students’ conceptual understanding and thinking, planning, and creative processes  
  
d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments  
  
***Rationale:*** a, b, c*.* The teacher will be addressing standard a and b by requiring students to create their own comics that go through a decision making process. Students will reflect on the comics they have created by checking to see if they meet the criteria on the rubric.  
  
**2. Design and Develop Digital Age Learning Experiences and Assessments. Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop knowledge, skills, and attitudes identified in the NETS-S.**  
a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity  
  
b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress  
  
c. Customize and personalize learning activities to address students’ diverse learning styles, working strategies, and abilities using digital tools and resources  
  
d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching  
  
***Rationale:*** a, c, d. Students will be using digital tools for their summative assessments in this lesson. The teacher will be using different learning styles throughout the lesson and in the products that students are creating.